

Contributions



HOW DO THE SCIENCES EDUCATE?

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At the present day when the sciences are so extensively taught, we are sometimes asked why they are so important or in what way do they educate? We must answer that the sciences educate a man on all sides. The thorough student of science can not be a onesided man. No matter what faculty or faculties are to be trained the study of the sciences will accomplish the desired result.

First of all a scientific course trains the faculties of observation. One can not pursue a study of the natural sciences without being observing. It is the prime requisite to nature study. Multitudes of persons are living and passing by objects of rarest beauty, but see them not because they have not been taught to observe. They see things as a whole if they see them at all and lose sight of the delicate tracery and wonderful arrangement which makes the whole a thing of beauty.

Many a man has handled load after load of corn and yet does not know that he never husked, shoveled, weighed or ground an ear upon which the kernels were arranged in an odd number of rows. Why has he not noticed this? The answer is easy. We do those things and see those things we are taught and trained to do and see.

The utilitarian will say, "What is the difference if we do not know whether the kernels on the cob are arranged in odd or even rows? The corn will produce the same amount of pork or meal." Let that be granted. The habit of observation gained by contact with these little apparently insignificant things will oftentimes be found of untold value in weightier matters.

The steam engine was the result of James Watt's observing that the steam lifted the lid of his mother's teakettle. The manufacture of Warren's Featherbone dress stays was brought about by Mr. Warren's observing a servant girl mending a broken corset stay

with a turkey feather. Gallileo observed the chandelier swinging in the cathedral and the clock was the result. Observation is a valuable accomplishment and it is by virtue of it primarily that mankind has been blessed by great inventions and discoveries.

Besides cultivating observation scientific study makes the student industrious and skillful. We think of it as a very skillful and delicate task to take the parts of a watch apart and put them together again, but Huxley in his laboratory dissected the nerves of a black beetle; such a delicate piece of work that the tool with which he worked was the dart from the sting of a bee.

Organisms are studied, which are too minute or delicate to be handled with even such fine instruments as the sting of a bee. Sections are cut for observation thru a microscope, that are so thin that two days of eight hours each, are needed for cutting into sections an object one inch long, one cut and the return of the knife for the next cut being made every two seconds. Then think of mounting each of these sections upon a glass slide and examining it thru a microscope. This does not finish the work, however, for the student wishes to get at one glance the structure of this object. The human mind can not grasp thirty thousand at one time or directly compare them with each other. He must, therefore, combine all the thirty thousand sections in a single view. To do this he must acquire the art of reconstructing in wax or clay, or upon paper, or in his mind solid objects from transverse sections.

As the skilled mechanic builds a machine from drawings of sections and elevations, so the naturalist must reconstruct the organism from sections. It is easy to see the practical value of the mechanic's work but the naturalist is often asked what reason there is for all his hard labor. Yet the same persons who ask that question are the ones who assert that the higher education breeds habits of idleness and unfits for the serious work of life. The fact remains that the men who work hardest and put in the longest hours are found in the different scientific laboratories, working on lines which will benefit the world at large much more than it will benefit themselves.

But what is the use of all this labor, someone asks. It was by just such painstaking and careful labor that Dr. Koch discovered the bacillus tuberculosis, the bacteria which causes the dread consumption. Day after day and week after week he spent, bent over his microscope, but at last he found that tiny organism, so small that one drop of water will contain a number equal to the human population of Chicago. The germs causing lockjaw, typhoid fever and many other diseases, have been found by the same method and today the medical fraternity are able, as they never have been before, to cope with these diseases so disastrous to the welfare of mankind.

There is also an ethical value to the study of science which we can not enlarge upon

here. Be it sufficient to say that no one can carefully study the wonders and beauties of nature and not be drawn into a greater love for the beautiful and sublime and into a fuller and closer communion with the Supreme Mind which governs it all.

THE COLLEGE

J. C. MACKEY

An institution that is maintained to direct the early mental work of the children of the church, should act as an aid in building up the ministry, and fitting it for the best service. This is the Christian college, owned and operated by the church, for which the church is responsible, and whose rise or fall, is placed to the credit or debit of the body to which it belongs. Such an institution is accredited to the Brethren church, is located at Ashland, Ohio, and should be loyally and liberally equipped and supported.

Our several district conferences have been electing trustees each year to represent them at Ashland. But from an evident misunderstanding of their duty, on the part of the electing bodies to these chosen commissioners, the far eastern and far western conferences were but feebly represented, if represented at all. I was amused at the Pennsylvania State conference held in Philadelphia a few years ago when, in the discussion of whether conference should pay trustees' expenses to annual meetings of the Board or not, a brother referred as a precedent to Pennsylvania college at Gettysburg being responsible, and not the Lutheran church, for its trustee's railroad fare to annual meetings. The brother was not aware that Pennsylvania college is not under denominational control, and is but nominally Lutheran. This, then, is the suggestion I wish to make, namely, that conferences continue to elect college trustees, but shall see that their expenses to Board meetings are paid in full.

Another duty our church owes to Ashland college is that it be endowed. So much has been said and written along this line, and I am now allowed only a column, that I hesitate before amplification. Permit me to give in brief three reasons why the church should squarely meet the requirement:

1. It is wise. To respond generally and at one time, once for all, and place the school on a solid financial basis, will be far less expensive than to aid grudgingly and sparingly for passing needs. Vigorous exception has been taken because of the apparently reckless manner in which the funds gathered in the past for Ashland college have disappeared. The accumulation of criticism is an inverted pyramid. The contributions, in my judgment were both meager and ill-timed and could not count for much. If the church really wants the college, and is as discreet as we believe she is, she will furnish a competent endowment at once.

2. It is honest. To endow Ashland College will show a purpose to maintain a school for the church by the brotherhood. Endowment says, "We want the college, and mean that it shall stay." A few men have been